IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner	:	David Hung Vu
Group Art Unit	:	2151
Applicants	:	Christopher Kikta et al.
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For	:	SMALL BUILDING AUTOMATION CONTROL SYSTEM

MS AMENDMENT
Commissioner for Patents
P.O. Box 1450
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<u>RESPONSE</u>

In response to the Office Action mailed November 28, 2005, please amend the above-identified application as set forth in the following pages.

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IN THE CLAIMS

1.　(Amended) A control system for controlling automated applications in a building environment comprising:

　　　　a communications network;

　　　　a plurality of application controllers connected to said communications network, each of said application controllers including means for controlling operation of a corresponding automated device, each of said application controllers ~~including~~ having a controller type;

　　　　a control interface connected to said communications network, said control interface including a database ~~of~~ having at least one profile ~~for an application~~ associated with at least one controller type; and

　　　　self-configuration means for providing automated configuration of each of said application controllers on said communications network, said self-configuration means including means for conveying said controller type ~~of said application controller~~ from ~~said~~ a first application controller, the first application controller being one of the plurality of application controllers, to said control interface, said self-configuration means further including means for configuring said first application controller based on said profile corresponding to said controller type ~~of said application controller~~.

2.　(Original) The control system of claim 1 wherein each of said application controllers controls operation of said corresponding automated device in accordance with at least one variable; and

wherein said control interface includes means for controlling operation of said application controller by specifying a value of said variable.

3.   (Original) The control system of claim 2 wherein said database of at least one profile for a controller type is further defined as including a plurality of profiles for application controllers of different controller types.

4.   (Amended) The control system of claim 3 wherein said control interface includes means for transmitting explicit messages to said application controllers, each of said explicit messages including an identification unique to a specific one of said application controllers; and

said application controllers each including receiving means for receiving said explicit messages from said control interface, said receiving means for receiving including means for recognizing only those of said explicit messages which include an identification unique to said application controller in which said means for receiving resides.

5.   (Amended) The control system of claim 4 wherein said means for transmitting an explicit messages include means for incorporating said value of said variable into said explicit message.

6.   (Original) The control system of claim 5 wherein said database of profiles includes input, output and configuration data structures for said application controllers.

7.   (Original) The control system of claim 6 wherein each of said application controllers include an occupancy status;

said control interface including means for grouping a plurality of application controllers into an occupancy group; and

means for defining said occupancy status of each of said application controllers in a given occupancy group as a group.

8. (Original) The control system of claim 7 further comprising a network server interface, said network server interface including means for monitoring and controlling operation of said control system over an Internet connection.

9. (Original) The control system of claim 4 wherein said control interface includes means for monitoring a status of each of said application controllers, said means for monitoring including a means for periodically transmitting a ping to each of said application controllers and a means for receiving a response to said ping from each of said application controllers.

10. (Original) The control system of claim 9 wherein each of said application controllers includes a means for receiving said ping from said control interface and a means for transmitting a response to said ping to said control interface.

11. (Original) The control system of claim 4 wherein said plurality of application controllers includes at least one HVAC application controller, at least one lighting application controller and at least one access control application.

12. (Amended) The control system of claim 4 wherein said ~~local~~ control interface further includes:

a database of application controller control software images; and

means for downloading said control software images into at least one of said application controllers.

13.   (Amended) The control system of claim 12 further comprising means for downloading said application controller control software images into said ~~local~~ control interface from an external source, whereby said application controller control software images can be upgraded.

14.   (Amended) The control system of claim 13 wherein at least one of said application controllers is preprogrammed with basic networking and configuration software enabling said at least one application controller to receive and install said application controller control software images downloaded by said ~~local~~ control interface.

15.   (Amended) The control system of claim 4 wherein said ~~local~~ control interface further includes means for downloading a ~~local~~ control interface control software image into said ~~local~~ control interface.

16.   (Amended) The control system of claim 15 further comprising means for downloading said ~~local~~ control interface control software image into said ~~local~~ control interface from an external source, whereby said ~~local~~ control interface control software images can be upgraded.

17.   (Amended) The control system of claim 16 wherein at least one of said ~~local~~ control interface is preprogrammed with basic networking and configuration software enabling said ~~local~~ control interface to receive and install said ~~local~~ control interface control software image downloaded by said ~~local~~ control interface.

18.   (Amended) The control system of claim 4 wherein at least one of said ~~local~~ control interface and said application controllers is preprogrammed with a generic programming language and includes means for downloading a control program to be run by said programming

language to define operation of at least one of said ~~local~~ control interface and said application

controllers.

19. (Amended) A control system for automated applications in a building environment

comprising:

a communications network;

a plurality of application controllers connected <u>directly</u> to said <u>communications</u>

network, each of said application controllers providing automated operation of a corresponding

application, each of said application controllers being capable of providing automated operation

of said corresponding application in accordance with a plurality of control variables; and

a control interface connected to said <u>communications</u> network, said control

interface including means for transmitting explicit messages <u>by way of an explicit address</u> to

each of said application controllers, said explicit messages including commands for adjusting

~~said~~ <u>the plurality of</u> control variables of said <u>plurality of</u> application controller<u>s</u>;

wherein each of said application controllers includes means for processing said

commands received from said control interface in said explicit messages and means for adjusting

a value of said <u>the plurality of</u> control variables in accordance with said command, whereby said

control interface is capable of controlling operation of said application controllers.

20. (Amended) The system of claim 19 wherein said application controllers include

application controllers of a plurality of different controller types;

said control interface including a preprogrammed database containing at least one profile, said profile defining ~~said~~ the plurality of control variables for said one of said controller types.

21. (Amended) The system of claim 20 wherein said preprogrammed database containing a plurality of profiles, each of said profiles being uniquely associated with one of said controller types and defining ~~said~~ the plurality of control variables for said one of said controller types.

22. (Original) The system of claim 20 wherein said controller types include at least an HVAC controller type, a lighting controller type and an access controller type.

23. (Original) The system of claim 22 further comprising a network server interface, said network server interface including means for monitoring and controlling operation of said control system over an Internet connection.

24. (Amended) The system of claim 23 wherein said control interface includes a means for periodically transmitting by way of explicit addressing a ping to each of said application controllers and a means for receiving a response to said ping from each of said application controllers.

25. (Amended) The system of claim 24 wherein each of said application controllers includes a means for receiving said ping from said control interface and a means for transmitting a response to said ping directly to said control interface.

26. (Amended) The system of claim 25 wherein said ping for at least one of said application controllers includes data for updating said application controller with current system information,

said application controller including means for updating certain of ~~said~~ the plurality of control

variables in accordance with said current system information.

27. (Amended) The system of claim 26 wherein said response transmitted by at least one of

said application controllers includes data relevant to at least one other of said application

controllers, said control interface including means for transmitting by way of explicit addressing

said data included in said response to said other of said application controllers.

28. (Original) The system of claim 27 wherein said control interface includes means for

generating an alarm if any of said application controllers fails to respond to said ping.

29. (Amended) The system of claim 28 further comprising self-configuration means for

providing automated configuration of each of said application controllers on said

communications network, said self-configuration means including means for conveying said

controller type of said application controller from said application controller to said control

interface, said self-configuration means further including means for configuring said application

controller based on said profile corresponding to said controller type of said application

controller.

30. (Original) The system of claim 29 wherein each of said application controllers includes

an occupancy status;

said interface controller including a means for grouping said application

controllers into occupancy groups; and

said interface controller further including means for defining as a group said

occupancy status of each of said application controller is a given group.

31.   (Amended) The system of claim 30 wherein said control interface includes:

        means for calculating a person count for at least one of said groups based on

access entry and access exit information received by said control interface from an access control

unit;

        means for defining said occupancy status of said <u>application</u> controllers within

said group based on said person count.

32.-66.   (Cancelled)

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<u>REMARKS</u>

Applicants thank Examiner Divecha for his careful attention to this patent application.

Applicants have amended the claims to overcome the §112 rejections,

I.   Claims 19-27.

The Examiner rejected claims 19-27 as anticipated by Pascucci et al., U.S. Patent No.

5,550,980 (hereinafter Pascucci).

A.   Claim 19

In Pascucci, the application controllers are not directly connected to the network. Rather,

they are connected by way of NCUs (network control units). Messages from the central

controller are sent to the NCU. The NCU then determines what actions to take with respect to

the application controllers connected to the NCU. (See Figs. 10 & 20)

Claim 19, as amended, states that the application controllers are connected directly to the

communications network and that the control interface transmit explicit messages by way of an

explicit address to the application controllers. Thus, the control interface communicates directly

with the control interface without the need for an NCU.

This provides a cost effective small building control system that is relatively simple to

install, configure and operate. The present invention preferably includes a dedicated local

control interface that replaces the high-cost PC conventionally used to configure and/or operate a

conventional IBS. The dedicated controller includes only those components necessary to

configure and control the system, and is therefore less expensive than conventional PCs.

B.   Claims 20-23

Claims 20-23 are allowable for the same reasons as claim 19.

C. Claim 24.

Claim 24 as amended requires that the control interface have a means for periodically transmitting a ping by explicit addressing. As stated previously, Pascucci does not use explicit addressing for accessing application controllers.

D. Claim 25

As amended, claim 25 states the application controller responds directly to the control interface. This also is not shown in Pascucci since all communication between an application controller and the central unit goes through an NCU.

E. Claims 26, 27 & 28

Claims 26 and 27 are allowable for the same reasons as the previous claims.

II. Claims 1-6, 9-18, and 29

The Examiner rejected claims 1-6, 9-18, and 29 as obvious due to Pascucci et al., U.S. Patent No. 5,550,980 (hereinafter Pascucci) in view of Pouchak et al., Pub. No. 2003/0005086, U.S. Patent 6,813,61 (hereinafter Pouchak).

The claim requires, among other things, self-configuration means further including means for configuring said first application controller based on said profile corresponding to said controller.

A. Claim 1

1. There is no suggestion to combine Pouchak and Pascucci.

The system shown in Pascucci provides a communication network where the communication between a central controller contacts an application controller by way of an NCU. Pouchak, on the other hand, shows a method where individual application controllers can be configured so as to communicate with each other. In Pouchak, a supervisory node broadcasts a new ID numbers to various client nodes on the network. Each client then use the broadcasted ID number as its network ID number.

One skilled in the art would not combine these two references. The problem faced in Pouchak is how to set up a communication link between the application controller and the control interface. Pascucci does not even address the issue. Pascucci assumes that communication links between the various controls is already in existence. Thus, one skilled in the art would not combine the two references.

2.   If Pouchak and Pascucci were combined, the result would not be the claimed invention.

The Examiner says that the combination of Pouchak and Pascucci would result in the invention of Claim 1. Not so.

Pouchak allows the configuration of a communication link between various devices on the network. If Pascucci were combined, the result would be a system like that shown in Pascucci that could establish a communication link automatically. However, the system would still not provide automatic **configuration**, and thus the device of claim 1 would not be the result of the combination of Pouchak and Pascucci.

Claim 1 requires that the self-configuration means include means for configuring the controller based upon a profile corresponding to the profile type. This is not done.

Further, the Examiner is not combining the references as they are. Rather, the Examiner is picking and choosing portions the Pouchak reference to use with Pascucci rather than taking the whole Pouchak reference with Pascucci.

3. Pouchak is incompatible with Pascucci

In Pouchak, configuration information is sent from the application controller to the supervisory node. Paragraphs 108 to 119. On the other hand, Pascucci's configuration information is within a database. (col. 67, lines 9-10).

If the two systems were combined, configuration information in the database would conflict with configuration information contained in the application controllers. Thus, a combination of the two systems would result in a chaotic system where configuration information would be in conflict.

B. Claim 2

Claim 2 is allowable because claim 1 is allowable.

C. Claim 3

Claim 3 again highlights how the combination of Pouchak and Pascucci in the manner suggested by the Examiner is impossible. In Pouchak, there is no database. In Pascucci, there is a database. If Pouchak was combined with Pascucci, there would be no need for a database since all information is supplied by the application controllers.

Thus, claim 3 is allowable.

D. Claim 4

Claim 4 requires that the control interface, which is defined in claim 1 as including a database, transmits explicit messages to the application controller. Pouchak does not have a control interface as defined by the claims. Thus, the Examiner is picking and choosing which items from Pouchak will be selectively used in Pascucci.

E. Claim 5

Claim 5 is allowable because the claim upon which it depends is allowable.

F. Claim 6

Claim 6 specifies that the database include input, output and configuration data structures for application controllers.

However, if Pouchak were combined with Pascucci, there would be no database since the information would always come from the application controllers themselves. Thus, the combination of Pouchak with Pascucci would not result in the invention of claim 6.

G. Claim 9-11

Claims 9-12 are allowable because the claims upon which they depends are allowable.

H. Claim 12

Claim 12 requires a database of application software control images and means for downloading software images into an application controller.

Pascucci show downloading of databases into NCUs. NCUs are network control units. Col. 28, line 30. NCUs are not application controllers. (See Fig. 10 where an NCU is connected to a lighting controller.)

Thus, claim 12 is not shown by the references cited by the Examiner, and is therefore allowable.

I.   Claim 13

Claim 13 is allowable for the same reason as claim 12.

J.   Claim 14

As noted above, Pascucci does not show downloading anything to application controllers. Therefore, the statement of the Examiner that the application controllers are capable of receiving and installing software images is conjecture.

K.   Claims 15, 16 & 17

Claim 15 and 16 are allowable for the same reason as claims 12, 13, and 14.

L.   Claim 18.

The portion of the specification used by the Examiner in rejecting claim 18 is with reference to a network controller. See Col. 33, lines 1-54. Thus, the network controller shown in Pascucci, not the application controllers, is executing code.

Thus, Claim 18 is not shown by Pascucci in combination with Pouchak.

II.   Claims 7, 8, 30 and 31

The Examiner rejected claims 7, 8, 30 and 31 as obvious due to Pascucci, Pouchak, and U.S. Patent No. 6,349,883 (hereinafter "Simmons").

A.   Claim 7

First, claim 7 states that each application controller has an occupancy status. This is not shown in Pascucci. In fact, "occupancy" is not even mentioned in the Pascucci patent.

Second, the Examiner states that Pascucci shows a means for grouping a plurality of application controllers into an occupancy group, referring to col. 40, Lines 30-65. However, the patent states, "Each group is assigned to one node in the network and may have many elements within the group." The patent indicates that each node is a network control unit. Col. 37, lines 61-65. Thus, the application controllers on the network are grouped by node, not by occupancy status.

The Examiner does admit that Pascucci does not show a means for defining occupancy status of each of said controller in a given group as a group. Simmons, however, does not show such a grouping. It merely shows that occupancy status of a zone is one variable to consider in operating an HVAC system.

If Simmons were combined with Pascucci, the result would be separate monitoring of the occupancy by zone rather than by application controller. Thus, the claimed invention would not result for the combination of references.

B.   Claim 8

Claim 8 is allowable because it depends from Claim 7.

C.   Claim 30

Claim 30 is allowable for the same reasons as stated with reference to Claim 7.

D.   Claim 31

The Examiner rejected claim 31 by contending that "motion detectors" are a means for calculating person count. However, the motion detector shown in Simmons produces an output if one person, a hundred people or a thousand people are moving. It simply provides either a "yes, room is occupied" or "no, room is not occupied." It never does a count of the occupants of the room.

Further claim 31 states that a person count is based on access entry and access exit information. This is not shown in Simmons.

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CONCLUSION

In view of the above amendments and these remarks, Applicants respectfully submit that the present application is in condition for allowance. A notice to that effect is earnestly and respectfully requested.

Respectfully submitted,

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